U.S. Department of Energy
and the
National Science Foundation

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Professor Mel Shochet
Chair, HEPAP
Enrico Fermi Institute
University of Chicago
Chicago, Illinois 60637

Dear Mel:

High Energy/Elementary Particle Physics in the United States is a partnership between the universities, the national laboratories, and the funding agencies. Universities are the home of most of our physicists and all of our graduate students; they provide training, intellectual leadership, academic excellence and new ideas to drive the program forward. The university contribution to particle physics is central and essential, as strong involvement of university scientists is required to conceive, design, build, operate, analyze and publish results from experiments at accelerator laboratories and elsewhere, and to provide the theoretical framework for the science. Research in experimental and theoretical particle physics at the universities is supported at a level of roughly $150M per year by DOE and NSF, with additional significant support from the universities themselves.

A number of recent developments combine to make it opportune to examine the university program at this time. With the impending completion of scientific operations of the Tevatron, PEP-II, CESR and HERA, the focus of research for many university physicists is shifting to CERN, with the approaching startup of the LHC, and to new experimental opportunities, some of which are not based at accelerators. Theoretical physics has expanded into super-string theories and toward cosmology, and the need for phenomenological studies related to collider physics is increasing. This changing landscape brings new challenges, as overall resources are tightly constrained, and university support has not been spared from the impact.

In light of this situation, we are requesting a comprehensive review of the DOE and NSF high energy physics university grant program. We recognize that there are two separate agencies with different approaches and missions. However, the goal of the review is to focus on the whole of the U.S. high energy physics university program, and how the agencies and the universities working together can best achieve the unified goals and objectives of the field.

The review should include:

- Goals: in broad terms, what should be our goals and objectives in supporting the university grant program? Is there an overall consensus on these goals that is communicated to and well understood by all stakeholders?
- Scope: What considerations apply that would serve to define the scope of the university program?

- Quality: Appraise the scientific and technical quality of the work being supported by the university program.
- Relevance: Assess the impact of the university program on the national and worldwide high energy physics efforts. Are there areas that are overemphasized, significantly under-supported, or missing altogether?
- Manpower: Does the university program have the correct number and distribution of university researchers at all levels to meet program objectives, including faculty, senior research staff, postdocs, graduate students, and professional staff for the near-, mid- and longer- term.
- Resources: Does the university program have the correct amount and distribution of resources to carry out its program scope? Include an assessment of the relevant contributions from allied programs in DOE, NSF and elsewhere. How should the program respond in the event of an increase or a decrease in available resources? In addition to financial resources, consider the need and availability of technical infrastructure at the universities.
- Structures: Do we have the right model of university funding, or do we need to revise or create new models for university research activity and support?
- Management: Examine how the programs are managed and overseen. How is the performance of the program optimized with respect to the overall goals and priorities? Suggest how management and performance might be improved, if appropriate.
- Broader Impacts: Consider the impact of program reach to the broader community - to other research disciplines, the public and private sector in research and education and in workforce development.

It is requested that a preliminary draft of your report should be presented to HEPAP by December 2006, with a final version by March 2007.

We thank you for your help in conducting this review by forming a HEPAP subpanel; its advice will be important to program planning by both agencies. We look forward to working with you in this endeavor.

Sincerely,

Robin Staffin
Associate Director
Office of High Energy Physics
Department of Energy

Joseph Dehmer
Division Director for Physics
Mathematical and Physical Sciences
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